

REMARKS

This Amendment is submitted in response to the Office Action dated October 27, 2003. With this amendment, new claims 80-100 are added, no claims are amended, and no claims are canceled. Upon entry of this Amendment, the above-identified application will include claims 37-52 and 74-100.

Claim Rejections Under 35 U.S.C. §102(b) Based On The Spertus Patent Or The Nakayama Patent

In the Office Action, the Examiner rejected claims 74 and 77 under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 3,546,055 to Spertus (subsequently referred to as the “Spertus patent”) or by U.S. Patent No. 4,085,176 to Nakayama (subsequently referred to as the “Nakayama patent”). In support of this rejection, the Examiner stated:

See Figures 1 and column 3, lines 15-25 of Spertus, the Examiner takes the case of the threads abutting as forming a netting structure.

See Figure 2, column 2, lines 35-50 of Nakayama.

Despite the Examiner’s comments neither the Spertus patent nor the Nakayama patent disclose each and every feature required by claims 74 and 77. Consequently, neither the Spertus patent nor the Nakayama patent anticipates claims 74 and 77.

Claims 74 and 77 each require a flexible layer, “the flexible layer comprising netting or open-meshed fabric.” The Examiner alleges the Spertus patent, at Figure 1 and column 3, lines 15-25, discloses the netting of the flexible layer that claims 74 and 77 each define. Furthermore, the Examiner alleges the Nakayama patent, at Figure 2 and column 2, lines 35-50, discloses the netting of the flexible layer that claims 74 and 77 each define.

“Netting” means a “network.” See Exhibit A: Merriam-Webster’s Collegiate Dictionary, p. 780, (Merriam-Webster, 10th ed.). A “network” is a “fabric or structure of cords or wires that cross at regular intervals and are knotted or secured at the crossings.” See Exhibit A: Merriam-Webster’s Collegiate Dictionary, p. 780, (Merriam-Webster, 10th ed.).

We first consider the Spertus patent. The Spertus patent does not disclose the netting or open-meshed fabric that are defined in claims 74 and 77. Col. 3, lines 12-17. Instead, the Spertus

patent merely discloses vertically-positioned lines 16 and horizontally-positioned lines 18. The Spertus patent characterizes these lines 16 and 18 as being in contact (i.e. “may abut each other”). Col. 3, lines 20-22. The Spertus patent never characterizes the lines 16, 18 as being knotted or secured at points where the lines 16, 18 cross. Instead, the Spertus patent merely notes the possible abutting relationship, while further stating that the lines 16, 18 are preferably “spaced slightly apart.” Col. 3, lines 22-23. Figure 2 of the Spertus patent highlights this preferred separation of the lines 16, 18 at points where the lines 16, 18 intersect.

The mere fact that the balls 14 may fix the intersections of the lines 16, 18 with respect to each other does not transform the combination of the lines 16,18 and the balls 14 into the netting required by claims 74 and 77. Claims 74 and 77 each require both (1) a plurality of impact absorbing members and (2) a flexible layer, where the flexible layer comprises “netting or open-meshed fabric.” If the balls 14 were construed as the impact absorbing members of claims 74 and 77, the Spertus patent would only disclose the crisscrossing arrangement of lines 16, 18, but not the “netting” that is defined in claims 74 and 77. The crisscrossing arrangement of lines 16, 18, even when fixed relative to each other within the balls 14 (impact absorbing members), does not equal the netting of claims 74 and 77, since claims 74 and 77 each require the existence of the “flexible layer,” such as the “netting or open-meshed fabric,” in the absence of the impact absorbing members (for claim 74) and prior to attachment of the impact absorbing members to the flexible layer (for claim 77. Alternatively, if the combination of the lines 16,18 and balls 14 were, albeit improperly, construed as netting, then the Spertus patent would lack the required impact absorbing members of claims 74 and 77, since the balls 14 would instead be part of the flexible layer, such as the netting defined in claims 74 and 77. Clearly, the Spertus patent does not disclose the combination of a flexible layer, such as netting, and impact absorbing members, as defined in claims 74 and 77.

As an alternative to the crisscrossing lines 16, 18, the Spertus patent allows for use of a sheet 20, where the sheet 20 may be a sheet of paper, textile, or plastic. Col. 3, lines 45-51. However, the mere disclosure of the textile genus does not amount to a disclosure of the “open-meshed fabric” species that is defined in claims 74 and 77, either explicitly or inherently. Clearly,

the Spertus patent does not disclose the combination of a flexible layer, such as open netting, and impact absorbing members, as defined in claims 74 and 77.

Along the same lines, the Examiner takes the intersecting wires disclosed in the Nakayama patent as allegedly being equal to the “netting or open-meshed fabric” defined in claims 74 and 77. However, this contention of the Examiner fails on at least two grounds. The Nakayama patent discloses:

A net 3 in FIG. 2 has the same shape with a slightly smaller area that the perforated plate. The net consists of rigid, straight wires crossing perpendicularly or diagonally to make a net formation

Col. 2, lines 40-43, emphasis added. The rigid wires are used to secure non-slip tips within a molding of concrete and mortar. Col. 2, lines 55-68.

Claims 74 and 77 each require a flexible layer, where the flexible layer may be in the form of netting. The net disclosed in the Nakayama patent clearly does not constitute the flexible layer required by claims 74 and 77, since the Nakayama patent instead discloses that the lines that make up the net are rigid, straight wires. Furthermore, the Nakayama patent discloses that the rigid wire-based net is encased in a hard and rigid filler material 8', such as concrete, that allows the Nakayama product to serve as pavement blocks. Col. 2, lines 55-68. Clearly, the Nakayama patent does not disclose the flexible layer, as defined in claims 74 and 77, and likewise does not disclose the combination of a flexible layer, such as open netting, and impact absorbing members, as defined in claims 74 and 77.

Claims 74 and 77 are allowable. Consequently, Applicant respectfully requests that the Examiner reconsider and withdraw the rejections of claims 74 and 77 under 35 U.S.C. §102(b) based on the Spertus patent and the Nakayama patent and that claims 74 and 77 be allowed.

Claim Rejection Under The Second Paragraph of 35 U.S.C. §112

In the Office Action, the Examiner rejected claim 47 under 35 U.S.C. §112, second paragraph, as allegedly failing to particularly point out and distinctly claim the subject matter. In support of this rejection, the Examiner provided the following comments:

It is not clear how the resin material can be expanded in claim 37 yet void free in claim 47.

Despite the Examiner's comments, claim 47 is definite in accordance with the second paragraph of 35 U.S.C. §112.

Rejected claim 47 reads as follows:

47. The method of claim 46 wherein the first impact absorbing members are free of voids.

Rejected claim 47 depends from claim 46 which reads as follows:

*46. The method of claim 37 wherein the impact absorbing composite comprises:
a plurality of first impact absorbing members attached to the flexible layer; and
a plurality of second impact absorbing members attached to the flexible layer, the first impact absorbing members and the second impact absorbing members attached to opposing sides of the flexible layer.*

Claim 46 in turn depends from claim 37 which reads as follows:

*37. A method of forming an impact absorbing composite, the method comprising:
placing a flexible layer into a molding apparatus, the molding apparatus having a plurality of first surfaces that define a plurality of first mold cavity portions and a second surface that defines a second mold cavity portion and, the flexible layer positioned between the first mold cavity portions and the second mold cavity portion, and the first mold cavity portions and the second mold cavity portion collectively forming a mold cavity;
placing polymeric resin in the mold cavity;
expanding the polymeric resin in the mold cavity to form an impact absorbing composite intermediate, the impact absorbing composite intermediate comprising expanded polymeric resin and the flexible layer; and
finishing the impact absorbing composite intermediate to form the impact absorbing composite.*

Thus, claim 37 defines formation of an “impact absorbing composite” that is based on an ‘impact absorbing composite intermediate” formed by “expanding . . . polymeric resin.” Claim 46 specifies that the impact absorbing composite of claim 37 comprises, in part, “a plurality of first impact absorbing members.” Rejected claim 47 then specifies that the first impact absorbing members defined in claim 46 “are free of voids.”

The second paragraph of 35 U.S.C. §112 is concerned with whether those skilled in the art will be able to understand with a reasonable degree of accuracy what subject matter is circumscribed by the invention that is defined by a particular claim. If those skilled in the art can reasonably determine whether any particular subject matter either falls within the scope of a particular claim or falls outside the scope of the particular claim, that claim is not indefinite or ambiguous under the second paragraph of 35 U.S.C. §112.

Furthermore, one of ordinary skill in the art would be well aware that the claims of a patent are read in light of the specification, including any definitions or explanations regarding particular claim language. Essentially, the specification acts as a dictionary of sorts for shorthand terminology that is used in the claims. Applicant is not required to modify claim language to include explanations about claim terminology that are included in the specification. Instead, explanations of claim terminology are properly placed in the specification, as Applicant has done.

Specifically, in the specification, Applicant states that closed cells of expanded resin “are not considered to be voids or cavities:”

For example, the material 34 may be a closed cell plastic foam formed by extrusion or by molding. There are a number of different techniques that may be used for expanding resin pellets and thereafter extruding or molding the expanded resin pellets to form the expanded resin pellets into the impact absorbing members 18, 20. These various techniques for expanding resin pellets and thereafter extruding and/or molding the expanded resin pellets to form the impact absorbing members 18, 20 are well within the knowledge of those of ordinary skill in the art and therefore are generally not described in detail herein. **As formed, the impact absorbing members 18, 20 should be solid, and without, or predominantly without, voids or cavities, where closed cells existent within the material 34 of the members 18, 20 are not considered to be voids or cavities.**

Page 19, lines 7-18, of the above-identified application (emphasis added).

Based on the foregoing explanation in the specification, there is no evidence one of ordinary skill in the art would be confused by the requirement in claim 47 that the first impact absorbing members be “free of voids.” The specification clearly points out and articulates how the resin material may be expanded in accordance with claim 37 and free of voids as specified in claim 47.

Claim 47 is allowable. Consequently, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claim 47 under the first paragraph of 35 U.S.C. §112 and that claim 47 be allowed.

Claim Rejections Under 35 U.S.C. §102(b) Based On The Habib Patent Or The Bethe Patent

In the Office Action, the Examiner rejected claims 75 and 78 under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 3,285,768 to Habib (subsequently referred to as the “Habib patent”) or by U.S. Patent No. 3,961,001 to Bethe (subsequently referred to as the Bethe patent”). In support of this rejection, the Examiner stated:

See Figure 4 of Habib and Figure 5 of Bethe. The Examiner takes the projections as being attached to the fabric and in contact with each other.

Despite the Examiner’s comments provided above neither the Habib patent nor the Bethe patent disclose each and every detail required by claims 75 and 78.

Claims 75 and 78 read as follows:

75. *An impact absorbing composite, the impact absorbing composite comprising:*
a plurality of impact absorbing members, each impact absorbing member being solid and predominantly free of voids; and
a flexible layer, each impact absorbing member attached to the flexible layer, wherein:
adjacent impact absorbing members are in contact with each other; and
the majority of the impact absorbing members are surrounded by at least three adjacent impact absorbing members.

78. *A method of making an impact absorbing composite, the method comprising:*
attaching a plurality of impact absorbing members to a flexible layer, the impact absorbing members being solid and predominantly free of voids;
placing adjacent impact absorbing members in contact with each other, the majority of the impact absorbing members surrounded by at least three adjacent impact absorbing members.

Thus, claims 75 and 78 each a flexible layer and a plurality of impact absorbing members, where the plurality of impact absorbing members are attached to the flexible layer.

The Examiner characterizes the fabric 41 shown in Figure 4 of the Habib patent as the flexible layer defined in claims 75 and 78. Next, the Examiner characterizes the foam portion 42 shown in Figure 4 of the Habib patent as having “projections.” The Examiner’s projections in Figure 4 of the Habib patent are foam segments that are formed by *partially* cutting or burning slits, grooves, or slashes in a foam sheet to break the continuity of the foam sheet. Col. 4, lines 21-28. The Examiner then alleges the Examiner’s projections from the Habib patent are attached the fabric 41.

However, the Examiner’s projections in the Habib patent are not in fact attached to the fabric 41 that the Examiner characterizes as the flexible layer. Instead, it is the part of the foam portion 42 that remains continuous (subsequently referred to herein as “the continuous part of the foam portion 42) that is attached to the fabric 41. This is because the slits, grooves, or slashes in the foam sheet (foam portion 42) do not extend all the way through the foam sheet. Thus, the Examiner’s projections are attached to the continuous part of the foam portion 42, rather than to the fabric 41. Thus, it is clear the Examiner’s projections in the Habib patent are not attached to the fabric 41; therefore, the Habib patent does not disclose the plurality of impact absorbing members that are attached to the flexible layer, as required by claims 75 and 78.

Applicant also notes that claims 75 and 78 each specify that adjacent impact absorbing members are “in contact with each other.” The slits, grooves, or slashes in the foam sheet that exist between different projections of the Examiner in the Habib patent make this specified “in contact with each other” relationship between adjacent projections an impossibility. Therefore, the

Habib patent does not disclose that adjacent impact absorbing members are “in contact with each other,” as required by claims 75 and 78.

With regard to the Bethe patent, the Examiner characterizes the islands 23' depicted in Figure 5 as “projections” and characterizes the backing fabric (analogous to back fabric 22 seen in Figure 5 of the Bethe patent) as a flexible layer. The Examiner’s projections in Figure 5 of the Bethe patent are latex foam segments that are formed by *partially* routing out channels 24' in the latex foam sheet. Col. 5, lines 34-60. The Examiner then apparently alleges the Examiner’s projections from the Bethe patent are attached the backing fabric (flexible layer).

However, the Examiner’s projections in the Bethe patent are not in fact attached to the backing layer (flexible layer). Instead, it is the part of the latex foam sheet underlying the islands 23' that remains continuous (subsequently referred to herein as “the continuous part of the Bethe foam portion”) that is attached to the backing layer (flexible layer) in the Bethe patent. This is because the channels 24' in the latex foam sheet do not extend all the way through the latex foam sheet. Thus, the Examiner’s projections are attached to the continuous part of the of the Bethe foam portion, rather than to the backing layer (flexible layer). Thus, it is clear the Examiner’s projections (islands 23') in the Bethe patent are not attached to the backing layer (flexible layer); therefore, the Bethe patent does not disclose the plurality of impact absorbing members that are attached to the flexible layer, as required by claims 75 and 78.

Applicant also notes that claims 75 and 78 each specify that adjacent impact absorbing members are “in contact with each other.” The channels 24' in the Bethe latex foam sheet that exist between different islands 23' make this specified “in contact with each other” relationship between adjacent projections an impossibility. Therefore, the Bethe patent does not disclose that adjacent impact absorbing members are “in contact with each other,” as required by claims 75 and 78.

Claims 75 and 78 are allowable. Consequently, Applicant respectfully requests that the Examiner reconsider and withdraw the rejections of claims 75 and 78 under 35 U.S.C. §102(b) based on the Habib patent and the Bethe patent and that claims 75 and 78 be allowed.

Claim Rejections Under 35 U.S.C. §102(b) Based On The Ambrose Patent

In the Office Action, the Examiner rejected claims 37-41 under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 3,840,269 to Ambrose (subsequently referred to as the “Ambrose patent”). In support of this rejection, the Examiner stated:

See the abstract and Figures 7, 2, and 8, col. 4, lines 1-10. Ambrose teaches a mold with two parts. The bottom part has various surfaces, which form mold cavity portions, which in turn form the top surface of Figure 2. The resin passes through the holes in the mesh layer during expansion. The cushion layer is further processed after removal from the mold (col. 4, lines 15-30).

Despite the Examiner’s comments, the Ambrose patent does not disclose each and every detail required by claims 37-41.

Claim 37 reads as follows:

37. *A method of forming an impact absorbing composite, the method comprising:*

placing a flexible layer into a molding apparatus, the molding apparatus having a plurality of first surfaces that define a plurality of first mold cavity portions and a second surface that defines a second mold cavity portion and, the flexible layer positioned between the first mold cavity portions and the second mold cavity portion, and the first mold cavity portions and the second mold cavity portion collectively forming a mold cavity;

placing polymeric resin in the mold cavity;

expanding the polymeric resin in the mold cavity to form an impact absorbing composite intermediate, the impact absorbing composite intermediate comprising expanded polymeric resin and the flexible layer; and

finishing the impact absorbing composite intermediate to form the impact absorbing composite.

Thus, claim 37 defines a molding apparatus that has “a plurality of first surfaces,” where the plurality of first surfaces “define a plurality of first mold cavity portions.” Claim 37 further specifies that the molding apparatus has “a second surface that defines a second mold cavity portion.” Claim 37

additionally defines a “flexible layer” that is “positioned between the first mold cavity portions and the second mold cavity portion.” Emphasis added.

The Ambrose patent discloses a mold 36 that includes a lower mold half 38 and an upper mold half 40:

[T]he lower mold half 38 molds the upper half of the bun and the upper mold half 40 molds the lower half of the bun.

Col. 3, lines 51-57, and Figures 7-8. The Examiner alleges the upper mold half 40 has a plurality of mold cavity portions: “The bottom part has various surfaces, which form mold cavity portions, which in turn form the top surface of Figure 2.” However, the Examiner fails to delineate the location and identity of the different “mold cavity portions” the Examiner comprehends in the upper mold half 40.

The Ambrose patent discloses a foamed seat bun 10 that is formed using the mold 36. The seat bun includes an upper seat surface 12 (see Figure 1) and a lower seat surface (see Figure 2) that has an indented or depressed lower surface 14. Col. 2, lines 24-30. The indented or depressed lower surface 14 is designed to be positioned downward and rest upon a conventional springy seat support which is utilized in automotive seats. Col. 2, lines 30-32. Additionally, the lower seat surface “is formed with a plurality of side beads or ridges 18 which fit around the sides of the springy seat support.” Col. 2, lines 35-37. The foamed seat bun 10 includes “a reinforcing or insulating member 20 which is embedded within the bun” 10 close to the indented lower surface 14. Col. 2, lines 41-43.

In the course of molding the bun 10, the “reinforcing member 20 is . . . placed within the mold and applied to the mold wall 42” of the upper mold half 40. Col. 3, lines 58-60. Consideration of the mold half 40, as depicted in Figure 8, illustrates that the portion of the mold half 40 that extends along the centerline depicted between the lower mold half 38 and the upper mold half 40 does not even constitute a mold cavity or mold cavity portion, but instead is flush with the opening defined by the cavity of the lower mold half 38. Thus, in this proximity of the depicted centerline, the reinforcing member 20 is clearly not “positioned between the first mold cavity portions and the second mold cavity portion,” as claim 37 requires, since no mold cavity or mold cavity portion even exists in this proximity of the depicted centerline. While a portion of the

reinforcing member 20 does cover one surface of a cavity within the upper mold half 40 (where this one surface curves away from the depicted centerline and the lower mold half 38), mere coverage of this one surface of the lower mold half 38 does not constitute positioning of the reinforcing member 20 “between the first mold cavity portions and the second mold cavity portion,” as claim 37 requires.

Furthermore, even if the Examiner considers, albeit incorrectly, that the surface of the mold half 40 proximate the centerline shown in Figure 8 is depressed away from the centerline, and thus from the mold cavity of the lower mold half 38, the reinforcing member 20 would still not cover multiple mold cavities or mold cavity portions of the upper mold half 40, as claim 37 requires: “the flexible layer positioned between the first mold cavity portions and the second mold cavity portion.” Instead, the reinforcing member 20 is depicted in Figure 7 as being applied only to a single portion of the mold 36, namely a mold cavity of the mold 36 that defines formation of the indented or depressed lower surface 14. The reinforcing member 20 is not depicted as being applied to any portion of the mold 36 that defines formation of the side beads or ridges 18 that surround and define the outer periphery of the indented or depressed lower surface 14. Mere coverage of the one continuous surface that defines formation of only the indented or depressed lower surface 14 does not constitute coverage of plural mold cavities or mold cavity portions by the reinforcing member 20. Consequently, for this additional reason, the Ambrose patent does not disclose positioning of a flexible member “between the first mold cavity portions and the second mold cavity portion,” as claim 37 requires.

Next, we consider claim 38, which reads as follows:

38. *The method of claim 37 wherein:*
placing polymeric resin in the mold cavity comprises placing
the polymeric resin in the first mold cavity portions
and the second mold cavity portion; and
expanding the polymeric resin in the mold cavity comprises
expanding the polymeric resin in the first mold cavity
portions and expanding the polymeric resin in the
second mold cavity portion.

Thus, claim 38 specifically requires placement of polymeric resin in **both** “the first mold cavity portions and the second mold cavity portion” prior to expansion of the polymeric resin. The Ambrose patent does not disclose this pre-expansion placement of the polymeric resin. Instead, the Ambrose patent discloses that the polymeric resin is placed only a single mold cavity portion, namely the lower mold portion 38. Col. 4, lines 2-4. Only thereafter, **during expansion** of the polymeric resin, does the polymeric resin begin to enter the upper mold half 40. Consequently, based on the explicit disclosure of the Ambrose patent, the Ambrose patent clearly does not disclose placement of polymeric resin in **both** “the first mold cavity portions and the second mold cavity portion” prior to expansion of the polymeric resin, as claim 38 requires.

Claims 37 and 38 are each allowable. Claims 39-41 are also allowable, since claims 39-41 each depend from both allowable claim 37 and from allowable claim 38. Furthermore, claim 38 is allowable for an additional reason, since claim 38 depends from allowable claim 37. Consequently, Applicant respectfully requests that the Examiner reconsider and withdraw the rejections of claims 37-41 under 35 U.S.C. §102(b) based on the Ambrose patent and that claims 37-41 be allowed.

Claim Rejections Under 35 U.S.C. §103(a) Based On The Brunner Patent In View Of The Ambrose Patent

In the Office Action, the Examiner rejected claims 37-41, 44-46, and 76-79 under 35 U.S.C. §103(a) as allegedly being obvious in light of U.S. 3,016,317 to Brunner (subsequently referred to as the “Brunner Patent”) in view of the Ambrose patent. In support of this rejection, the Examiner provided the following comments:

Brunner teaches a closed cell foam mat with impact projections on the top and bottom surfaces (Figures 3 and 1, col. 2, lines 25-35). Ambrose teaches putting a net shaped reinforcing layer in a foam article to prevent tearing and crumbling of the foam (col. 4, lines 4-55). Ambrose further teaches forming the net reinforcement in the foam layer by expanding resin through the netting in a closed mold, which also provides desired shapes on the surface of the foamed article (see the abstract and Figures 7, 2, and 8, col. 4, lines 1-10). The instant invention claims a flexible layer structure with impact

projections in contact and on both sides of the mesh layer with the article being formed by expansion in a closed mold of resin and removal to finish the article. It would have been obvious to one of ordinary skill in the art to add a mesh layer to the article of Brunner to prevent the foam layer from tearing or crumbling because of the teachings of Ambrose. It further would have been obvious to one of ordinary skill in the art to form the combined article by foaming resin in a mold in order to join foam to both sides of the mesh layer because of the teachings of Ambrose. The top layer of the combination is finished with a cover layer after molding. Brunner teaches the use of an suitable plastic foam (col. 3, lines 20-30).

Despite the Examiner's rejection and comments, the Brunner patent and the Ambrose patent, either separately or in any combination, do not teach, suggest, disclose or make obvious the invention of the above-identified application, as defined in claims 37-41, 44-46, and 76-79.

The Examiner suggests it would have been obvious to one of ordinary skill to substitute the reinforcing member 20 that is embedded in the foamed seat bun 10 of the Ambrose patent into the exercise mat 1 of the Brunner patent in an attempt to replicate the structural features and attributes defined in claims 76-78 of the above-identified application:

It further would have been obvious to one of ordinary skill in the art to add a mesh layer to the article of Brunner to prevent the foam layer from tearing or crumbling because of the teachings of Ambrose.

Furthermore, the Examiner suggests it would have been obvious to one of ordinary skill to form the exercise mat 1 of the Brunner patent by including the reinforcing member 20 of the Ambrose patent in a mold and foaming resin in the mold in an attempt to replicate the methodology, structural features, and structural attributes defined in claims 37-41, 44-46, and 79 of the above-identified application:

It further would have been obvious to one of ordinary skill in the art to form the combined article by foaming resin in a mold in order to join foam to both sides of the mesh layer because of the teachings of Ambrose.

Before we even arrive at consideration of the features defined in claims 37-41, 44-46, and 76-79, a closer look at the Ambrose and Brunner patents is in order to better understand the Examiner's suggestion and any pitfalls or dilemmas posed by the Examiner's suggestion.

The Ambrose patent discloses a mold 36 that includes a lower mold half 38 and an upper mold half 40:

[T]he lower mold half 38 molds the upper half of the bun and the upper mold half 40 molds the lower half of the bun.

Col. 3, lines 51-57, and Figures 7-8. The Ambrose patent also discloses a foamed seat bun 10 that is formed using the mold 36.

The seat bun includes an upper seat surface 12 (see Figure 1) and a lower seat surface (see Figure 2) that has an indented or depressed lower surface 14. Col. 2, lines 24-30. The indented or depressed lower surface 14 is designed to be positioned downward and rest upon a conventional springy seat support which is utilized in automotive seats. Col. 2, lines 30-32. Additionally, the lower seat surface “is formed with a plurality of side beads or ridges 18 which fit around the sides of the springy seat support.” Col. 2, lines 35-37. The foamed seat bun 10 includes “a reinforcing or insulating member 20 which is embedded within the bun” 10 close to the indented lower surface 14. Col. 2, lines 41-43. In the course of molding the bun 10, the “reinforcing member 20 is . . . placed within the mold and applied to the mold wall 42” of the upper mold half 40. Col. 3, lines 58-60.

The Brunner patent discloses a mat 1 formed of a sheet of closed cell cellular thermoplastic material. Col. 1, lines 67-70. The Brunner patent discloses grooves 2 that may be formed on one or both sides of the mat 1 by application of heat and pressure in association with a press plate. Col. 2, lines 6-10 and 61-71. The grooves extend only from one to 10 millimeters into the mat 1, whereas the mat 1 may have be as much as 200 millimeters thick, or more. Col. 1, line 69, through col. 2, line 5; and col. 3, lines 15-17. However, as visually depicted in Figures 1, 2, and 3, the depth of the grooves is always “considerably less than the thickness” of the mat 1. Col. 1, lines 29-34; and Figures 1, 2, and 3. The profiling of the face(s) of the mat 1 with the grooves 2 imparts “extraordinary flexibility” to the mat 1 which allows the mat 1 to be easily rolled up. Col. 2, lines 43-46.

The seat bun 10 of the Ambrose patent, on the other hand, is not designed to be flexible enough for being rolled up. Instead, the seat bun 10 of the Ambrose patent is meant to be used as a cushion that rests upon a conventional springy seat support which is utilized in automotive

seats. Col. 2, lines 30-32. Also, the Ambrose patent teaches the use of a reinforcing member 20, in the form of an open lattice, mesh, or netting. Col. 2, lines 41-48. The strands of the reinforcing member 20 are “relatively stiff” and, when coupled with the joints where the strands crisscross, cause the foamed plastic material that the bun 10 is made of to be “highly stretch resistant in all of its planar directions.” Col. 1, lines 34-36 and 55-61. Ultimately, the purpose and function of the reinforcing member 20 is to prevent the bun 10 from losing its shape and thereby enhance the performance of the bun when used as a seat cushion. Col. 1, lines 57-63.

Thus, the Ambrose patent discloses a seat bun 10 that is not designed to be flexible enough for being rolled up and further discloses a reinforcing member 20 that prevents the seat bun 10 from losing its shape. On the other hand, the Brunner patent discloses a mat 1 with grooves 2 that impart “extraordinary flexibility” to the mat 1 and allow the mat 1 to be easily rolled up. Nevertheless, the Examiner suggest that one of ordinary skill in the art would be motivated to incorporate the reinforcing member 20 of the Ambrose patent into the mat 1 of the Brunner patent. This proposition is flawed, however. In fact, the Ambrose patent and the Brunner patent strongly teach away from the Examiner’s proposed substitution. Indeed, the power of the reinforcing member 20 to prevent the seat bun 10 from losing its shape would likewise be expected to prevent the Brunner mat 1 from losing its shape and thereby would be expected to make it more difficult to roll the mat 1 up. In essence, incorporation of the Ambrose reinforcing member 20 into the Brunner mat 1 would destroy an important and intended function of the Brunner mat 1, namely the ability to easily roll the mat 1 up. In essence, the purpose of the reinforcing member 20 to prevent shape loss and the purpose of the grooves 2 to enhance flexibility and rollability are incompatible with each other.

Consequently, despite the Examiner’s suggested substitution, no motivation, teaching, or suggestion actually exists in support of the Examiner’s suggested substitution. Therefore, it is clearly evident that the Examiner’s suggested substitution of the reinforcing member 20 of the Ambrose patent into the mat 1 of the Brunner patent would not be obvious to one of ordinary skill in the art. Instead, the art, such as the Ambrose patent and the Brunner patent, actively teach away from the desirability of any such substitution.

Even if the Examiner's suggestion about forming the exercise mat 1 of the Brunner patent by including the reinforcing member 20 of the Ambrose patent in a mold and foaming resin in the mold were attempted, despite the lack of any motivation, teaching or suggestion in the art to so, any such attempt would not result in the invention of the above-identified application, as defined in claims 37-41, 44-46, and 76-79. For example, as noted above, claim 37 defines a molding apparatus that has "a plurality of first surfaces," where the plurality of first surfaces "define a plurality of first mold cavity portions." Claim 37 further specifies the molding apparatus has "a second surface that defines a second mold cavity portion." Claim 37 additionally defines a "flexible layer" that is "positioned between the first mold cavity portions and the second mold cavity portion." Emphasis added.

As detailed above in relation to the Examiner's rejection of claim 37 based solely on the Ambrose patent, consideration of the mold half 40, as depicted in Figure 8 of the Ambrose patent, illustrates the portion of the mold half 40 that extends along the centerline depicted between the lower mold half 38 and the upper mold half 40 does not constitute a mold cavity or mold cavity portion, but instead is flush with the opening defined by the cavity of the lower mold half 38. Thus, in this proximity of the depicted centerline, the reinforcing member 20 in the Ambrose patent is clearly not "positioned between the first mold cavity portions and the second mold cavity portion," as claim 37 requires, since no mold cavity or mold cavity portion even exists in this proximity of the depicted centerline. While a portion of the reinforcing member 20 does cover one surface of a cavity within the upper mold half 40 (where this one surface curves away from the depicted centerline and the lower mold half 38), mere coverage of this one surface of the lower mold half 38 does not constitute positioning of the reinforcing member 20 "between the first mold cavity portions and the second mold cavity portion," as claim 37 requires.

Furthermore, even if the incorrectly considers that the surface of the mold half 40 proximate the centerline shown in Figure 8 of the Ambrose patent is depressed away from the centerline, and thus from the mold cavity of the lower mold half 38, the reinforcing member 20 would still not cover multiple mold cavities or mold cavity portions of the upper mold half 40, as

claim 37 requires: “the flexible layer positioned between the first mold cavity portions and the second mold cavity portion.” Instead, the reinforcing member 20 is depicted in Figure 7 of the Ambrose patent as being applied only to a single portion of the mold 36, namely a mold cavity of the mold 36 that defines formation of the indented or depressed lower surface 14. The reinforcing member 20 is not depicted as being applied to any portion of the mold 36 that defines formation of the side beads or ridges 18 that surround and define the outer periphery of the indented or depressed lower surface 14. Mere coverage of the one continuous surface that defines formation of only the indented or depressed lower surface 14 does not constitute coverage of plural mold cavities or mold cavity portions by the reinforcing member 20 in the Ambrose patent.

The above comments demonstrate how the Ambrose patent does not disclose positioning of a flexible member “between the first mold cavity portions and the second mold cavity portion,” as claim 37 requires. The Brunner patent adds nothing to the disclosure of the Ambrose patent on this topic, since the Brunner patent merely discloses provision of a sheet of closed cell cellular thermoplastic material (col. 1, lines 67-70) as a mat 1 coupled with grooves 2 that may be formed on one or both sides of the mat 1 by application of heat and pressure in association with a press plate. Col. 2, lines 6-10 and 61-71. The Brunner patent therefore adds nothing to the molding disclosure of the Ambrose patent. Therefore, the details provided in the Ambrose patent and in the Bruno patent, either separately or in any combination, fail to teach, suggest, motivate, disclose, or make obvious positioning of a flexible member “between the first mold cavity portions and the second mold cavity portion,” as claim 37 requires.

Next, we consider claim 38, which reads as follows:

38. *The method of claim 37 wherein:
placing polymeric resin in the mold cavity comprises placing
the polymeric resin in the first mold cavity portions
and the second mold cavity portion; and
expanding the polymeric resin in the mold cavity comprises
expanding the polymeric resin in the first mold cavity
portions and expanding the polymeric resin in the
second mold cavity portion.*

Thus, claim 38 specifically requires placement of polymeric resin in **both** “the first mold cavity portions and the second mold cavity portion” prior to expansion of the polymeric resin.

As detailed above in relation to the Examiner’s rejection of claim 38 based solely on the Ambrose patent, the Ambrose patent does not disclose this pre-expansion placement of the polymeric resin. Instead, the Ambrose patent discloses the polymeric resin is placed only a single mold cavity portion, namely the lower mold portion 38. Col. 4, lines 2-4. Only thereafter, **during expansion** of the polymeric resin, does the polymeric resin begin to enter the upper mold half 40. Consequently, based on the explicit disclosure of the Ambrose patent, the Ambrose patent clearly does not disclose placement of polymeric resin in **both** “the first mold cavity portions and the second mold cavity portion” prior to expansion of the polymeric resin, as claim 38 requires.

The Brunner patent adds nothing to the disclosure of the Ambrose patent on this topic, since the Brunner patent merely discloses provision of a sheet of closed cell cellular thermoplastic material (col. 1, lines 67-70) as a mat 1 coupled with grooves 2 that may be formed on one or both sides of the mat 1 by application of heat and pressure in association with a press plate. Col. 2, lines 6-10 and 61-71. The Brunner patent therefore adds nothing to the molding disclosure or polymeric resin placement disclosure of the Ambrose patent. Therefore, the details provided in the Ambrose patent and in the Bruno patent, either separately or in any combination, fail to teach, suggest, motivate, disclose, or make obvious placement of polymeric resin in **both** “the first mold cavity portions and the second mold cavity portion” prior to expansion of the polymeric resin, as claim 38 requires.

Next, we consider claim 39, which reads as follows:

39. *The method of claim 38 wherein:
the flexible layer has a first major surface and a second major surface that are located on opposing sides of the flexible layer and has internal surfaces that define a plurality of holes that extend through the flexible layer from the first major surface to the second major surface; and
placing polymeric resin in the mold cavity comprises placing the polymeric resin in the second mold cavity portion and allowing the polymeric resin to pass through the holes of the flexible layer and into the first mold cavity portions.*

Thus, claim 39 specifically requires passage of the polymeric resin “through the holes of the flexible layer and into the first mold cavity portions” prior to expansion of the polymeric resin.

The Ambrose patent does not disclose this pre-expansion passage of the polymeric resin “through the holes of the flexible layer and into the first mold cavity portions.” In fact, the Ambrose patent could not possibly contain such a disclosure, since, in the course of molding the bun 10, the Ambrose patent discloses that the “reinforcing member 20 is . . . applied to the mold wall 42” of the upper mold half 40. Col. 3, lines 58-60. In this arrangement, with the reinforcing member 20 applied to the mold wall 42, passage of unexpanded resin from one side of the reinforcing member 20, through the reinforcing member 20, and to the other side of the reinforcing member 20 is a physical impossibility. Consequently, based on the explicit disclosure of the Ambrose patent, the Ambrose patent clearly does not disclose passage of the polymeric resin “through the holes of the flexible layer and into the first mold cavity portions” prior to expansion of the polymeric resin, as claim 39 requires.

The Brunner patent adds nothing to the disclosure of the Ambrose patent on this topic, since the Brunner patent merely discloses provision of a sheet of closed cell cellular thermoplastic material (col. 1, lines 67-70) as a mat 1 coupled with grooves 2 that may be formed on one or both sides of the mat 1 by application of heat and pressure in association with a press plate. Col. 2, lines 6-10 and 61-71. The Brunner patent therefore adds nothing to the molding disclosure or polymeric resin passage disclosure of the Ambrose patent. Therefore, the details provided in the Ambrose patent and in the Bruno patent, either separately or in any combination, fail to teach, suggest, motivate, disclose, or make obvious passage of the polymeric resin “through the holes of the flexible layer and into the first mold cavity portions” prior to expansion of the polymeric resin, as claim 39 requires.

We next consider claims 46 and 76-79. Claims 46 and 76-79 each define a “flexible layer” and “impact absorbing members” and require either attachment of the “impact absorbing members” to the “flexible layer” or that the “impact absorbing members” be attached to the “flexible layer.” Certainly the Examiner will agree that this structural and methodological requirement is not

met by the Ambrose patent, since the Ambrose patent clearly does not disclose “impact absorbing members” (in the plural) and furthermore does not disclose any attachment of “impact absorbing members” (in the plural) to the reinforcing member 20.

The Brunner patent adds nothing to the disclosure of the Ambrose patent on this topic, since the Brunner patent merely discloses provision of a sheet of closed cell cellular thermoplastic material (col. 1, lines 67-70) as a mat 1 coupled with grooves 2 that may be formed on one or both sides of the mat 1 by application of heat and pressure in association with a press plate. Col. 2, lines 6-10 and 61-71. The Examiner implies that use of the reinforcing member 20 of the Ambrose patent coupled with joinder of the Brunner foam to both sides of the reinforcing member 20 would be adequate, but this contention of the Examiner disregards the need to have plural “impact absorbing members” attached to the flexible layer.

To be clear, portions of the foam sheet of the Brunner patent located between the ends of the grooves 2 constitute continuous portions of the foam sheet. Any protuberances present in the mat 1 of the Brunner patent end with the ends of the grooves 2. Thus, we have in the Brunner patent either a continuous foam sheet portion with an attached array of protuberances, where adjacent protuberances are separated from one another by the grooves 2. In another embodiment of the Brunner patent, we have a continuous foam sheet portion with two attached arrays of protuberances. The two attached arrays of protuberances are located on opposing sides of the continuous foam sheet portion. In each of the arrays, adjacent protuberances are separated from one another by the grooves 2.

However, as noted above, claims 46 and 76-79 each require either attachment of the “impact absorbing members” to the “flexible layer” or that the “impact absorbing members” be attached to the “flexible layer.” The Examiner admits in the Office Action that his “flexible layer” is the reinforcing member 20 of the Ambrose patent that he suggest be incorporated into the mat 1 of the Brunner patent. However, there is no teaching, suggestion, motivation, or disclosure in the Ambrose patent regarding attachment of the reinforcing member 20 to “impact absorbing members” (in the plural), since the Ambrose patent does not even teach, suggest, or disclose any such “impact absorbing members” (in the plural).

The Examiner would like to see the reinforcing member 20 attached to the protuberances that exist between the different grooves 2 in the mat 1 of the Brunner patent. However, the problem with this desire of the Examiner is that neither the Ambrose patent nor the Brunner patent provides any teaching, suggestion, motivation, or disclosure whatsoever that would lead one skilled in the art to attach the reinforcing member 20 in the multitude of protuberances that exist between the different grooves 2 in the mat 1 of the Brunner patent. Indeed, there really is not teaching, suggestion, motivation, or disclosure whatsoever in either the Brunner patent or the Ambrose patent about where to position the reinforcing member 20 in a structure, such as the Brunner mat 1, that contains the protuberances (which enhance mat 1 flexibility and rollability), where the enhanced mat 1 flexibility and rollability is desirably maintained.

The only conceivable solution would be to use the details provided in claims 46 and 76-79 as a guide that leads to attachment of the “impact absorbing members” to the “flexible layer.” However, any such use of the claim details as a guide or map to creating the invention defined therein is of course improper hindsight reconstruction that may not be used as the basis for an allegation that the claim details are rendered obvious by a single reference or by a combination of references, such as the combination of references, namely the Ambrose and the Bruno patents, the Examiner seeks to rely upon. Consequently, the foregoing comments illustrate the details provided in the Ambrose patent and in the Bruno patent, either separately or in any combination, fail to teach, suggest, motivate, disclose, or make obvious either attachment of the “impact absorbing members” to the “flexible layer,” as claims 46 and 76 each require, or that the “impact absorbing members” be attached to the “flexible layer,” as claims 77-79 each require.

We next consider claims 76 and 78-79 again. Claims 76 and 78-79 each define a “impact absorbing members” and require either that adjacent “impact absorbing members” be in contact with each other or placement of adjacent “impact absorbing members” in contact with each other. Certainly the Examiner will agree that this structural and methodological requirement is not met by the Ambrose patent, since the Ambrose patent clearly does not disclose “impact absorbing members” (in the plural) and therefore cannot physically disclose or teach anything about adjacent

“impact absorbing members” being in contact with each other or placement of adjacent “impact absorbing members” in contact with each other.

The Brunner patent adds nothing to the disclosure of the Ambrose patent on this topic, since the Brunner patent merely discloses provision of a sheet of closed cell cellular thermoplastic material (col. 1, lines 67-70) as a mat 1 coupled with grooves 2 that may be formed on one or both sides of the mat 1 by application of heat and pressure in association with a press plate. Col. 2, lines 6-10 and 61-71. To be clear, portions of the foam sheet of the Brunner patent located between the ends of the grooves 2 constitute continuous portions of the foam sheet. Any protuberances present in the mat 1 of the Brunner patent end with the ends of the grooves 2. In each of the arrays or protuberances disclosed in the Brunner patent, adjacent protuberances are disclosed as being physically separated from one another by the grooves 2. There simply is no teaching or suggestion in the Brunner patent about placing any of the adjacent protuberances in contact with each other.

The Examiner would like to see adjacent protuberances in contact with other while in the mat 1 of the Brunner patent. However, the problem with this desire of the Examiner is that neither the Ambrose patent nor the Brunner patent provides any teaching, suggestion, motivation, or disclosure whatsoever that would lead one skilled in the art to force adjacent protuberances into contact with other. In fact, the method by which the protuberances are formed in the Brunner patent makes it impossible for adjacent protuberances to be in contact with other.

Due to the lack of needed teaching, suggestion, motivation, or disclosure in the Brunner and Ambrose patents, the only conceivable solution would be to use the details provided in claims 76 and 78-79 as a guide that leads to placement of adjacent “impact absorbing members” in contact with each other. However, any such use of the claim details as a guide or map to creating the invention defined therein is of course improper hindsight reconstruction that may not be used as the basis for an allegation that the claims details are rendered obvious by a single reference or by a combination of references, such as the combination of references, namely the Ambrose and the Bruno patents, the Examiner seeks to rely upon. Consequently, the foregoing comments illustrate the details provided in the Ambrose patent and in the Bruno patent, either separately or in any combination, fail to teach, suggest, motivate, disclose, or make obvious either adjacent “impact absorbing members” that are in

contact with each other, as claims 76 and 79 require or placement of adjacent “impact absorbing members” in contact with each other, as claim 78 requires. Furthermore, the Brunner patent actually teaches away from any such contact between adjacent impact absorbing members that would do away with or diminish the extent of the grooves 2, since the Brunner patent teaches that profiling of the face(s) of the mat 1 with the grooves 2 imparts “extraordinary flexibility” to the mat 1 which allows the mat 1 to be easily rolled up. Col. 2, lines 43-46.

Claims 37-39, 46, and 76-79 are each allowable. Claims 40-41 and 44-45 are also allowable, since claims 40-41 and 44-45 each depend from allowable claim 37. Furthermore, claims 38-39 and 46 are allowable for an additional reason, since claims 38-39 and 46 each depend from allowable claim 37. Consequently, Applicant respectfully requests that the Examiner reconsider and withdraw the rejections of claims 37-41, 44-46, and 76-79 under 35 U.S.C. §103(a) based on the Ambrose patent and the Brunner patent and that claims 37-41, 44-46, and 76-79 be allowed.

Claim Rejections Under 35 U.S.C. §103(a) Based On The Brunner, Ambrose, and Hanusa Patents

In the Office Action, the Examiner rejected claims 51 and 52 under 35 U.S.C. §103(a) as allegedly being obvious in light of the Brunner patent in view of the Ambrose patent and further in view of U.S. 4,138,283 to Hanusa (subsequently referred to as the Hanusa patent). In support of this rejection, the Examiner provided the following comments:

Hanusa teaches the formation of grooves or projections in a foam layer by cutting (col. 1, lines 20-45). The instant invention claims molding reins over a mesh and using the mold to shape the top of the article then removal from the mold and forming bottom projections by cutting. It would have been obvious to one of ordinary skill in the art to form the projections of Brunner as modified above by either cutting or molding as alternate means because of the teachings of Hanusa and Ambrose.

Despite the Examiner’s rejection and comments, the Brunner patent, the Ambrose patent, and/or the Hanusa patent, either separately or in any combination, do not teach, suggest, disclose or make obvious the invention of the above-identified application, as defined in claims 51-52.

We first consider claim 51 which reads as follows:

51. *The method of claim 37 wherein:
the impact absorbing composite intermediate comprises a plurality of first impact absorbing members, the first impact absorbing members formed in the first mold cavity portions; and
finishing the impact absorbing composite intermediate comprises:
removing excess expanded polymeric resin to form a plurality of second impact absorbing members, the first impact absorbing members and the second impact absorbing members located on opposing sides of the flexible layer.*

Claim 51 thus requires a (1) flexible layer, (2) first impact absorbing members that are formed in first mold cavity portions and (3) second impact absorbing members that are formed by removal of excess expanded polymeric resin, where (4) the first impact absorbing members and the second impact absorbing members are located on opposing sides of the flexible layer.

This is a tall order for the Brunner patent, the Ambrose patent, and the Hanusa patent. In fact, as explained above, neither the Ambrose patent individually nor the Examiner's proposed combination of the Ambrose patent and the Brunner patent were effective for establishing that claim 37 is unpatentable. Now the Examiner seeks to rely on a minor background comment of the Hanusa patent while also resurrecting the inadequate Ambrose and Brunner patents.

The Examiner has suggested it would have been obvious to one of ordinary skill to substitute the reinforcing member 20 that is embedded in the foamed seat bun 10 of the Ambrose patent into the exercise mat 1 of the Brunner patent in an attempt to replicate the structural features and attributes defined in claims 37, and consequently in claims 51 and 52:

It further would have been obvious to one of ordinary skill in the art to add a mesh layer to the article of Brunner to prevent the foam layer from tearing or crumbling because of the teachings of Ambrose.

Furthermore, the Examiner suggests it would have been obvious to one of ordinary skill to form the exercise mat 1 of the Brunner patent by including the reinforcing member 20 of the Ambrose patent

in a mold and foaming resin in the mold in an attempt to replicate the methodology, structural features, and structural attributes defined in claim 37, and consequently in claims 51 and 52:

It further would have been obvious to one of ordinary skill in the art to form the combined article by foaming resin in a mold in order to join foam to both sides of the mesh layer because of the teachings of Ambrose.

The Examiner's reliance on the Hanusa patent adds nothing to the Examiner's alleged support for forming the exercise mat 1 of the Brunner patent by including the reinforcing member 20 of the Ambrose patent in a mold, since the Examiner only relies on minor background information in the Hanusa patent regarding cutting of foam for purposes of attempting to create the second impact absorbing members that are formed by removal of excess expanded polymeric resin following formation of the first impact absorbing members in the first mold cavity portions, as claim 51 requires. However, the comments that are summarized below based on more extensive comments previously provided above show there is no need to even consider the minor disclosure of the Hanusa patent, since the Ambrose patent and the Brunner patent are incapable of even yielding combination of the flexible layer and the first impact absorbing members that are required by claim 51.

Specifically, referencing comments previously discussed at length above, the Ambrose patent discloses a seat bun 10 that is not designed to be flexible enough for being rolled up and further discloses a reinforcing member 20 that prevents the seat bun 10 from losing its shape. On the other hand, the Brunner patent discloses a mat 1 with grooves 2 that impart "extraordinary flexibility" to the mat 1 and allow the mat 1 to be easily rolled up. The Examiner's suggestion that one of ordinary skill in the art would be motivated to incorporate the reinforcing member 20 of the Ambrose patent into the mat 1 of the Brunner patent is mortally flawed. In fact, the Ambrose patent and the Brunner patent strongly teach away from the Examiner's proposed substitution. Indeed, the power of the reinforcing member 20 to prevent the seat bun 10 from losing its shape would likewise be expected to prevent the Brunner mat 1 from losing its shape and thereby would be expected to make it more difficult to roll the mat 1 up. In essence, incorporation of the Ambrose reinforcing member 20 into the Brunner mat 1 would destroy an important and intended function of the Brunner mat 1, namely the ability to easily roll the mat 1 up. Otherwise stated, the purpose of the reinforcing

member 20 to prevent shape loss and the purpose of the grooves 2 to enhance flexibility and rollability are incompatible with each other.

Consequently, despite the Examiner's suggested substitution, no motivation, teaching, or suggestion actually exists in support of the Examiner's suggested substitution. Therefore, it is clearly evident that the Examiner's suggested substitution of the reinforcing member 20 of the Ambrose patent into the mat 1 of the Brunner patent would not be obvious to one of ordinary skill in the art. Instead, the art, such as the Ambrose patent and the Brunner patent, actively teach away from the desirability of any such substitution.

Even if the Examiner's suggestion about forming the exercise mat 1 of the Brunner patent by including the reinforcing member 20 of the Ambrose patent in a mold and foaming resin in the mold were attempted, despite the lack of any motivation, teaching or suggestion in the art to so, any such attempt in combination with the minor cutting details of the Hanusa patent would not result in the invention of the above-identified application, as defined in claims 51-52. For example, as noted above, claim 51 requires a (1) flexible layer, (2) first impact absorbing members that are formed in first mold cavity portions and (3) second impact absorbing members that are formed by removal of excess expanded polymeric resin, where (4) the first impact absorbing members and the second impact absorbing members are located on opposing sides of the flexible layer.

Certainly the Examiner will agree that this structural and methodological requirement is not met by the Ambrose patent, since the Ambrose patent clearly does not teach, suggest, or disclose anything about "impact absorbing members" (in the plural). Instead, the Examiner seeks to attain this plurality of "impact absorbing members" by reliance solely on the Brunner patent. The Brunner patent merely discloses provision of a sheet of closed cell cellular thermoplastic material (col. 1, lines 67-70) as a mat 1 coupled with grooves 2 that may be formed on one or both sides of the mat 1 by application of heat and pressure in association with a press plate. Col. 2, lines 6-10 and 61-71. To be clear, portions of the foam sheet of the Brunner patent located between the ends of the grooves 2 constitute continuous portions of the foam sheet. The grooves effectively do form protuberances that are defined by the grooves 2. The protuberances present in the mat 1 of the

Brunner patent end with the ends of the grooves 2. Indeed, without the grooves 2, no protuberances would even exist; therefore the grooves 2 must be taken as defining the protuberances.

However, there is no teaching, suggestion, or motivation in either the Ambrose patent or the Brunner patent to form the protuberances of the Brunner patent via molding. The Ambrose patent is the only document presently relied upon by the Examiner for molding purposes, but the Ambrose patent does not teach, suggest, or motivate formation of a plurality of impact absorbing members, as previously noted. The Brunner patent says nothing about molding, since the foam sheet used to form the mat 1 in the Brunner patent is merely provided from some unknown source in sheet form. Still further, there is no teaching, suggestion, motivation, or disclosure in either the Ambrose patent or the Brunner patent where to position the reinforcing member 20 of the Ambrose patent in a system that includes a plurality of impact absorbing members. That is left to speculation.

The speculative nature of the Examiner's suggestion is not remedied by the claim 51 requirement for need for the second impact absorbing members (formed by removal of excess expanded polymeric resin), where the first impact absorbing members and the second impact absorbing members are located on opposing sides of the flexible layer. There is no teaching, suggestion, motivation, or disclosure in either the Ambrose patent, the Brunner patent, or the Hanusa patent about where to position the reinforcing member 20 of the Ambrose patent in a system that two separate pluralities of impact absorbing members. Again, that is left to speculation.

The only conceivable way to resolve that speculation would be to use the details provided in claim 51 as a guide that leads to placement of the different sets of "impact absorbing members" on opposing sides of the flexible layer. However, any such use of the claim details as a guide or map to creating the invention defined therein is of course improper hindsight reconstruction that may not be used as the basis for an allegation that the claim details are rendered obvious by a single reference or by a combination of references, such as the combination of references, namely the Ambrose, Bruno, and Hanusa patents, the Examiner seeks to rely upon. Consequently, the foregoing comments illustrate the details provided in the Ambrose, Bruno, and Hanusa patents, either separately or in any combination, fail to teach, suggest, motivate, disclose, or make obvious a (1) flexible layer, (2) first impact absorbing members that are formed in first mold cavity portions

and (3) second impact absorbing members that are formed by removal of excess expanded polymeric resin, where (4) the first impact absorbing members and the second impact absorbing members are located on opposing sides of the flexible layer, as claim 51 requires.

We next consider claim 52 that reads as follows:

52. *The method of claim 51 wherein:
removing excess expanded polymeric resin means thermally
cutting excess expanded polymeric resin,
mechanically cutting or routing excess expanded
polymeric resin, vaporizing excess expanded
polymeric resin, or any of these in any combination.*

The Examiner clearly does not rely on the Ambrose patent for the details required by claim 52, since the Ambrose patent does not teach, suggest, or disclose anything about removal of excess expanded polymeric resin. Likewise, the Examiner clearly does not rely on the Brunner patent for the details required by claim 52, since the Brunner patent does not teach, suggest, or disclose anything about removal of excess expanded polymeric resin.

Instead, based on the foregoing observations and the Examiner's comments above ("Hanusa teaches the formation of grooves or projections in a foam layer by cutting (col. 1, lines 20-45)"). However, the passage relied upon by the Examiner from the Hanusa patent merely mentions "cutting," without specifying what type of cutting is meant. Cutting could entail cutting with an energized source, such as a stream of water. There's nothing in the Hanusa patent to suggest what type of cutting is meant. The Examiner may speculate about what type of cutting is meant, but such speculation on the part of the Examiner does not give rise to obviousness.

Another conceivable way to resolve the speculation that arises from a review of the Hanusa patent would be to use the details provided in claim 52 as a guide that leads to selection of either thermally cutting, mechanically cutting, routing, or vaporizing for removal of excess expanded polymeric resin. However, any such use of the claim details as a guide or map to creating the invention defined therein is of course improper hindsight reconstruction that may not be used as the basis for an allegation that the claims details are rendered obvious by a single reference or by a combination of references, such as the combination of references, namely the Ambrose, Bruno, and Hanusa patents, the Examiner seeks to rely upon. Consequently, the foregoing comments illustrate the details provided in the Ambrose,

Bruno, and Hanusa patents, either separately or in any combination, fail to teach, suggest, motivate, disclose, or make obvious removal of excess expanded polymeric resin by “thermally cutting excess expanded polymeric resin, mechanically cutting or routing excess expanded polymeric resin, vaporizing excess expanded polymeric resin, or any of these in any combination, as defined in claim 52.

Claims 51-52 are each allowable. Claims 51-52 are also allowable for an additional reason, since claims 51-52 each depend from allowable claim 37. Consequently, Applicant respectfully requests that the Examiner reconsider and withdraw the rejections of claims 51-52 under 35 U.S.C. §103(a) based on the Ambrose patent, the Brunner patent, and the Hanusa patent and that claims 51-52 be allowed.

Claim Rejections Under 35 U.S.C. §103(a) Based Upon The Spertus, Nakayama, and Ambrose Patents

In the Office Action, the Examiner rejected claims 37-43 and 46-50 under 35 U.S.C. §103(a) as allegedly being obvious in light of the Spertus patent or the Nakayama patent in view of the Ambrose patent. In support of this rejection, the Examiner provided the following comments:

Spertus and Nakayama teach molded resin elements extending from and joined to a mesh structure as noted above. Ambrose teaches a method of molding resin and joining it to a mesh structure as noted above. The instant invention claims forming a mesh with separate projections joined on both sides of the mesh by molding a closed mold. It would have been obvious to one of ordinary skill in the art to have formed the projections of Spertus or Nakayama by foaming resin in a closed mold in order to join the projections to the mesh material because of the teachings of Ambrose.

Despite the Examiner’s rejection and comments, the Spertus patent, the Nakayama patent, and/or the Ambrose patent, either separately or in any combination, do not teach, suggest, disclose or make obvious the invention of the above-identified application, as defined in claims 37-43 and 46-50.

Before proceeding any further, a couple of clarifications are needed regarding the Examiner’s mischaracterizations of details disclosed in the Spertus patent and in the Nakayama patent. We start with the Examiner’s mischaracterization of the Nakayama patent as allegedly

disclosing “molded resin elements . . . joined to a mesh structure.” Then, we will consider the Examiner’s mischaracterization of the Spertus patent as allegedly disclosing “a mesh structure.”

With regard to the Examiner’s mischaracterization of the Nakayama patent as allegedly disclosing “molded resin elements . . . joined to a mesh structure,” we first note that the “as noted above” comment is erroneous, since the Examiner never previously characterized the Nakayama patent as allegedly disclosing “molded resin elements . . . joined to a mesh structure” in the present Office Action. Next, considering the substance of the Examiner’s statement that the Nakayama patent discloses “molded resin elements . . . joined to a mesh structure,” this statement is erroneous and is a mischaracterization of the disclosure contained in the Nakayama patent.

The Nakayama patent does disclose “non-slip tips 4” and does disclose that these “non-slip tips 4” may be made of rubber. Col. 1, lines 58-64; col. 2, lines 41-45 and 60-61; col. 3, line 39; and Figures 2-6. However, there is no disclosure anywhere in the Nakayama patent about how the “non-slip tips 4” are formed. Certainly the Examiner must agree that the Nakayama patent says nothing about the “non-slip tips 4” constituting “molded resin elements.” Therefore, the Examiner’s statement about the Nakayama patent allegedly disclosing “molded resin elements . . . joined to a mesh structure” is a mischaracterization of the details actually disclosed in the Nakayama patent.

With regard to the Examiner’s mischaracterization of the Spertus patent as allegedly disclosing “molded resin elements . . . joined to a mesh structure,” we first note that the “as noted above” comment is erroneous, since the Examiner never previously characterized the Spertus patent as allegedly disclosing “molded resin elements . . . joined to a mesh structure” in the present Office Action. Next, considering the substance of the Examiner’s statement that the Spertus patent discloses “molded resin elements . . . joined to a mesh structure,” this statement is erroneous and is a mischaracterization of the disclosure contained in the Spertus patent.

Specifically, the Spertus patent does not disclose any “mesh structure” and consequently cannot and does not disclose “molded resin elements . . . joined to a mesh structure.” “Mesh” means:

1: one of the openings between the threads or cords of a net; also: one of the similar spacings in a network – often used to designate screen size as the number of openings per linear inch 2 a: the fabric

of a net **b**: a woven, knit, or knotted material of open texture with evenly spaced holes **c**: an arrangement of interlocking metal links used esp for jewelry **3 a**: an interlocking or intertwining arrangement or construction : NETWORK **b**: web

See Exhibit B: Merriam-Webster's Collegiate Dictionary, pp. 728-729 (Merriam-Webster, 10th ed.).

“Net” means:

1 a: an open-meshed fabric twisted, knotted, or woven together at regular intervals.

See Exhibit A: Merriam-Webster's Collegiate Dictionary, pp. 780 (Merriam-Webster, 10th ed.).

Finally, “network” means

1: a fabric or structure of cords or wires that cross at regular intervals and are knotted or secured at the crossings.

See Exhibit A: Merriam-Webster's Collegiate Dictionary, p. 780, (Merriam-Webster, 10th ed.).

Despite the Examiner's allegation, the Spertus patent does not disclose “a mesh structure.” Instead, the Spertus patent merely discloses vertically-positioned lines 16 and horizontally-positioned lines 18. The Spertus patent characterizes these lines 16 and 18 as being in contact (i.e. “may abut each other). Col. 3, lines 20-22. The Spertus patent never characterizes the lines 16, 18 as being knotted or secured at points where the lines 16, 18 cross. Instead, the Spertus patent merely notes the possible abutting relationship, while further stating that the lines 16, 18 are preferably “spaced slightly apart.” Col. 3, lines 22-23. Figure 2 of the Spertus patent highlights this preferred separation of the lines 16, 18 at points where the lines 16, 18 intersect.

The mere fact that the balls 14 may fix the intersections of the lines 16, 18 with respect to each other does not transform the combination of the lines 16, 18 and the balls 14 into the Examiner's mesh, since the Examiner alleges “molded resin elements . . . joined to a mesh structure.” Therefore, the Examiner clearly does not consider the balls 14 to be part of the Examiner's mesh, since such a belief would conflict with the Examiner's allegation that “molded resin elements” are “joined to a mesh structure.” The foregoing comments illustrate the Examiner's statement about the Spertus patent allegedly disclosing “molded resin elements . . . joined to a mesh structure” is a

mischaracterization of the details actually disclosed in the Spertus patent, since the Spertus patent does not actually disclose a “mesh structure.”

The Examiner suggests it would have been obvious to one of ordinary skill to modify the mold 36 of the Ambrose patent that employs the reinforcing member 20 embedded in the foamed seat bun 10 of the Ambrose patent to mold structures as in the Spertus and Nakayama patents employing multiple projections in an attempt to replicate the methodology, structural features, and structural attributes defined in claims 37-43 and 46-50 of the above-identified application:

It would have been obvious to one of ordinary skill in the art to have formed the projections of Spertus or Nakayama by foaming resin in a closed mold in order to join the projections to the mesh material because of the teachings of Ambrose.

Before we even arrive at consideration of the features defined in claims 37-43 and 46-50, a closer look at the Ambrose, Spertus, and Nakayama patents is in order to better understand the Examiner's suggestion and any pitfalls or dilemmas posed by the Examiner's suggestion.

The Ambrose patent discloses a mold 36 that includes a lower mold half 38 and an upper mold half 40:

[T]he lower mold half 38 molds the upper half of the bun and the upper mold half 40 molds the lower half of the bun.

Col. 3, lines 51-57, and Figures 7-8. The Ambrose patent also discloses a foamed seat bun 10 that is formed using the mold 36.

The seat bun includes an upper seat surface 12 (see Figure 1) and a lower seat surface (see Figure 2) that has an indented or depressed lower surface 14. Col. 2, lines 24-30. The indented or depressed lower surface 14 is designed to be positioned downward and rest upon a conventional springy seat support which is utilized in automotive seats. Col. 2, lines 30-32. Additionally, the lower seat surface “is formed with a plurality of side beads or ridges 18 which fit around the sides of the springy seat support.” Col. 2, lines 35-37. The foamed seat bun 10 includes “a reinforcing or insulating member 20 which is embedded within the bun” 10 close to the indented lower surface 14. Col. 2, lines 41-43. In the course of molding the bun 10, the “reinforcing member 20 is . . . placed within the mold and applied to the mold wall 42” of the upper mold half 40. Col. 3, lines 58-60.

The Examiner suggests it would have been obvious to one of ordinary skill to modify the mold 36 of the Ambrose patent that employs the reinforcing member 20 embedded in the foamed seat bun 10 of the Ambrose patent to mold structures as in the Spertus patent employing multiple projections. The Spertus patent discloses vertically-positioned lines 16 and horizontally-positioned lines 18. The Spertus patent characterizes these lines 16 and 18 as being in contact (i.e. “may abut each other). Col. 3, lines 20-22. The Spertus patent never characterizes the lines 16, 18 as being knotted or secured at points where the lines 16, 18 cross. Instead, the Spertus patent merely notes the possible abutting relationship, while further stating that the lines 16, 18 are preferably “spaced slightly apart.” Col. 3, lines 22-23. Figure 2 of the Spertus patent highlights this preferred separation of the lines 16, 18 at points where the lines 16, 18 intersect. As an alternative to the crisscrossing lines 16, 18, the Spertus patent allows for use of a sheet 20, where the sheet 20 may be a sheet of paper, textile, or plastic. Col. 3, lines 45-51.

The Spertus patent discloses balls or spheres 14 that may be formed or strung on the lines 16, 18. The Spertus patent does not disclose the use of a mold having a cavity to form any sphere 14 about the lines 16, 18. Instead, the Spertus patent merely discloses that two existing semi-spheres (halves) may be molded (formed) together to create a whole sphere 14 that is located on both sides of the flexible sheet (or with lines 16, 18 passing through the whole sphere 14). Col. 3, lines 40-65. Even if the semi-spheres (halves) are molded on the flexible sheet, the Spertus patent merely suggests that pre-expanded polystyrene foam material (in forms such as rods or tube) may be positioned on opposing sides of the flexible sheet and then formed (molded or shaped) into the final spherical shape. Col. 3, lines 52-61.

However, this disclosure of the Spertus patent does not teach, suggest, or disclose placement of a flexible layer (the layout of crisscrossing lines 16, 18) into a molding apparatus having a plurality of first surfaces that define a plurality of first mold cavity portions, placement of polymeric resin in a mold cavity, or expansion of the polymeric resin in a mold cavity to form the mat 12 of the Spertus patent with spheres 14 arranged about the flexible sheet (or arranged about the layout of crisscrossing lines 16, 18) of the Spertus patent. Instead, the Spertus patent merely teaches

the joinder of two existing semi-spheres (halves) or, as the most expansive reading of the Spertus teachings, use of pre-expanded polystyrene foam material that is shaped into the final spherical shape after positioning of the pre-expanded polystyrene foam on opposing sides of the flexible sheet.

This lacking disclosure of the Spertus patent forced the Examiner to suggest that it would have been obvious to one of ordinary skill to modify the mold 36 of the Ambrose patent that employs the reinforcing member 20 embedded in the foamed seat bun 10 of the Ambrose patent to form the mat 12 of the Spertus patent with spheres 14 arranged about the flexible sheet (or arranged about the layout of crisscrossing lines 16, 18) of the Spertus patent. However, motivation to proceed according to the Examiner's suggestion is lacking in the art, as exemplified by the Ambrose patent and the Spertus patent, and the Nakayama patent adds nothing further in this regard to the collective teaching of the Ambrose and Spertus patents.

First, the Ambrose patent teaches the molding of a single foam structure (bun 10) using a single cavity mold 36 about a flexible member (reinforcing member 20), where the flexible member (reinforcing member 20) is fully encompassed by the single foam structure (bun 10). Furthermore, it is noted that the single foam structure encompasses all junctions of the strands 22, 24 that form the reinforcing member 20. Additionally, the Ambrose patent teaches the use of the reinforcing member 20, in the form of an open lattice, mesh, or netting. Col. 2, lines 41-48. The strands of the reinforcing member 20 are "relatively stiff" and, when coupled with the joints where the strands crisscross, cause the foamed plastic material that the bun 10 is made of to be "highly stretch resistant in all of its planar directions." Col. 1, lines 34-36 and 55-61. Ultimately, the purpose and function of the reinforcing member 20 is to prevent the bun 10 from losing its shape and thereby enhance the performance of the bun when used as a seat cushion. Col. 1, lines 57-63.

The Spertus patent, on the other hand, discloses the mat 12 with spheres 14 arranged about the flexible sheet (or arranged about the layout of crisscrossing lines 16, 18). Thus, according to the Spertus patent a single flexible sheet (or a single layout of crisscrossing lines 16, 18) is associated with a plurality of the spheres 14. Furthermore, the Spertus patent requires that the mat

12 be flexible so the mat 12 is able to “assume the contour of the article being packaged or packed.” Col. 3, lines 24-31.

Thus, the Ambrose patent teaches molding of a single foam structure (bun 10) about a flexible member (reinforcing member 20), where the flexible member (reinforcing member 20) is fully encompassed by the single foam structure (bun 10). On the other hand, the Spertus patent requires a structure where multiple foam structures are attached in spaced apart fashion to a single flexible member (layout of lines 16, 18). The Ambrose patent further teaches that the single foam structure (bun 10) encompasses all of the junctions of the strands 22, 24 that form the reinforcing member 20. On the other hand, the Spertus patent teaches that in a single layout of crisscrossing lines 16, 18, each foam structure only encompasses one point where the lines 16, 18 cross.

Thus, significant modification of the details disclosed in the Ambrose patent to get from a structure and method of molding of a single foam structure (bun 10) that encompasses the entire flexible member (reinforcing member 20) to a structure and method of molding multiple foam structures (spheres 14) that individually (and even collectively) do not encompass an entire flexible member is required. However, no teaching or suggestion about how to accomplish this major change in structure and methodology is provided in the Ambrose patent or in the Spertus patent. The Examiner’s reliance on the Nakayama patent adds nothing, since the Nakayama patent, like the Ambrose patent, teaches molding of a single body that individually encompasses an entire web (the net 3 > see Nakayama Figures 3 and 4). Furthermore, the Examiner does not point to any particular passages of the Ambrose or Spertus patents in support of the Examiner’s theory that such a major change in structure and methodology would allegedly be obvious. Certainly, there is no teaching or suggestion in the Ambrose patent about using multiple mold cavities to mold multiple, individual bodies, such as multiple spheres 14. Likewise, there is no teaching or suggestion in the Nakayama patent about using multiple mold cavities to mold multiple, individual bodies, such as multiple spheres 14 that individually (and even collectively) do not encompass an entire flexible member. Certainly, the Examiner must agree that the Spertus patent does not teach such a multiple molding

cavity setup, since the Spertus patent merely discloses individual molding of semi-spheres (halves) far removed from the single flexible member (layout of lines 16, 18) disclosed in the Spertus patent.

Furthermore, the attributes and structural form of the bun 10 that fully and individually encompasses the entire flexible member (reinforcing member 20) teach away from the use of the Ambrose technique as an approach to developing packaging that is flexible enough to conform to multi-dimensional shapes. Indeed, the purpose and function of the reinforcing member 20 in the Ambrose patent is to prevent the bun 10 of the Ambrose patent from losing its shape. Col. 1, lines 57-63. On the other hand, the purpose of individually supplying and spacing apart the spheres 14 on the single flexible member (layout of lines 16, 18) is to provide the mat 12 with a high degree of flexibility. Col. 3, lines 24-31. Thus, the molding technique and structure espoused by the Ambrose patent, rather than suggesting modifications adequate to form the mat 12 of the Spertus patent, actually teach away from the Examiner's suggested modification.

In essence, the structure formed by the method of the Ambrose patent is inconsistent with uses desired for the structure formed in accordance with the Ambrose patent. The Nakayama patent does nothing to rectify the teaching the Examiner seeks, but which is lacking, in the Ambrose patent, since the Nakayama patent clearly teaches production of a rigid paving block (col. 1, line 9-20), rather than an article able to "assume the contour of the article being packaged or packed," as specified in the Spertus patent. Consequently, based on this additional observation regarding the teachings and attributes of the structures and methodologies of the Ambrose, Nakayama, and Spertus patents, one of ordinary skill in the art would not view modification or incorporation of the Ambrose molding technique in accordance with the Examiner's suggestion as obvious, (1) since such a modification or incorporation would destroy an important and intended function of the mat 12, namely enabling the mat 12 to "assume the contour of the article being packaged or packed" and (2) since the Ambrose, Nakayama, and Spertus patents teach away from such a modification or incorporation.

Clearly, despite the Examiner's suggested modification or incorporation, no motivation, teaching, or suggestion actually exists in support of the Examiner's suggestion. Instead,

the art, such as the Ambrose, Nakayama, and Spertus patents, actually teaches away from the desirability of any such substitution.

Even if the Examiner's suggestion about modifying the mold 36 of the Ambrose patent that employs the reinforcing member 20 embedded in the foamed seat bun 10 of the Ambrose patent to mold structures as in the Spertus and Nakayama patents employing multiple projections were attempted, any such attempt would not result in the invention of the above-identified application, as defined in claims 37-43 and 46-50. For example, as noted above, claim 37 defines a molding apparatus that has "a plurality of first surfaces," where the plurality of first surfaces "define a plurality of first mold cavity portions." Claim 37 further specifies the molding apparatus has "a second surface that defines a second mold cavity portion." Claim 37 additionally defines a "flexible layer" that is "positioned between the first mold cavity portions and the second mold cavity portion." Emphasis added.

As detailed above in relation to the Examiner's rejection of claim 37 based solely on the Ambrose patent, consideration of the mold half 40, as depicted in Figure 8 of the Ambrose patent, illustrates the portion of the mold half 40 that extends along the centerline depicted between the lower mold half 38 and the upper mold half 40 does not constitute a mold cavity or mold cavity portion, but instead is flush with the opening defined by the cavity of the lower mold half 38. Thus, in this proximity of the depicted centerline, the reinforcing member 20 in the Ambrose patent is clearly not "positioned between the first mold cavity portions and the second mold cavity portion," as claim 37 requires, since no mold cavity or mold cavity portion even exists in this proximity of the depicted centerline. While a portion of the reinforcing member 20 does cover one surface of a cavity within the upper mold half 40 (where this one surface curves away from the depicted centerline and the lower mold half 38), mere coverage of this one surface of the lower mold half 38 does not constitute positioning of the reinforcing member 20 "between the first mold cavity portions and the second mold cavity portion," as claim 37 requires.

Furthermore, even if the Examiner incorrectly considers that the surface of the mold half 40 proximate the centerline shown in Figure 8 of the Ambrose patent is depressed away from

the centerline, and thus from the mold cavity of the lower mold half 38, the reinforcing member 20 would still not cover multiple mold cavities or mold cavity portions of the upper mold half 40, as claim 37 requires: “the flexible layer positioned between the first mold cavity portions and the second mold cavity portion.” Instead, the reinforcing member 20 is depicted in Figure 7 of the Ambrose patent as being applied only to a single portion of the mold 36, namely a mold cavity of the mold 36 that defines formation of the indented or depressed lower surface 14. The reinforcing member 20 is not depicted as being applied to any portion of the mold 36 that defines formation of the side beads or ridges 18 that surround and define the outer periphery of the indented or depressed lower surface 14. Mere coverage of the one continuous surface that defines formation of only the indented or depressed lower surface 14 does not constitute coverage of plural mold cavities or mold cavity portions by the reinforcing member 20 in the Ambrose patent.

The above comments demonstrate how the Ambrose patent does not teach, suggest, or disclose positioning of a flexible member “between the first mold cavity portions and the second mold cavity portion,” as claim 37 requires. The Spertus patent adds nothing to the disclosure of the Ambrose patent on this topic, since the Spertus patent merely discloses balls or spheres 14 that may be formed or strung on the lines 16, 18. The Spertus patent does not disclose use of a mold having a cavity to form any sphere 14 about the lines 16, 18. Instead, the Spertus patent merely discloses that two existing semi-spheres (halves) may be molded (formed) together to create a whole sphere 14 that is located on both sides of the flexible sheet (or with lines 16, 18 passing through the whole sphere 14). Col. 3, lines 40-65. Even if the semi-spheres (halves) are molded on the flexible sheet, the Spertus patent merely suggests that pre-expanded polystyrene foam material (in forms such as rods or tube) may be positioned on opposing sides of the flexible sheet and than formed (molded or shaped) into the final spherical shape. Col. 3, lines 52-61.

However, this disclosure of the Spertus patent does not teach, suggest, or disclose anything about use of a mold or mold cavities in the course of forming the spheres 14. Certainly, the Spertus patent does not teach or suggest anything about positioning of a first mold cavity (with mold cavity portions) and a second mold cavity on opposing sides of a flexible member.

Consequently, this disclosure of the Spertus patent does not teach, suggest, or disclose anything about positioning of a flexible member “between the first mold cavity **portions** and the second mold cavity portion,” as claim 37 requires.

Furthermore, as noted above, the Nakayama patent does not teach, suggest, or disclose anything about how the “non-slip tips 4” are formed, as pointed out in detail above. Certainly, the Examiner must agree that the disclosure of the Nakayama patent does not teach, suggest, or disclose anything about use of a mold or mold cavities in the course of forming the “non-slip tips 4.” The net disclosed in the Nakayama patent clearly does not constitute the flexible layer required by claim 37, since the Nakayama patent instead discloses that the lines that make up the net are **rigid**, straight wires. Furthermore, the Nakayama patent discloses that the rigid wire-based net is encased in a hard and rigid filler material 8', such as concrete, that allows the Nakayama product to serve as pavement blocks. Col. 2, lines 55-68. Thus, the Nakayama patent clearly does not teach or suggest anything about positioning of a first mold cavity (with mold cavity portions) and a second mold cavity on opposing sides of a flexible member, especially since the Nakayama patent does not even disclose or teach anything about a flexible member, but instead concerns a rigid wire-based net.

Neither the Ambrose, Spertus, nor Nakayama patents, either separately or in any combination, teaches, suggests, or discloses anything about positioning of a flexible member “between the first mold cavity **portions** and the second mold cavity portion,” as claim 37 requires. The only conceivable solution to this lack of guidance by the Ambrose, Spertus, and Nakayama patents would be to use the details provided in claim 37 as a guide that leads to positioning of a flexible member “between the first mold cavity **portions** and the second mold cavity portion.”

However, any such use of the claim details as a guide or map to creating the invention defined therein is of course improper hindsight reconstruction that may not be used as the basis for an allegation that the claim details are rendered obvious by a single reference or by a combination of references, such as the combination of references, namely the Ambrose, Spertus, and Nakayama patents, the Examiner seeks to rely upon. Consequently, the foregoing comments illustrate the details provided in the Ambrose patent, the Spertus patent, and the Nakayama patent, either

separately or in any combination, fail to teach, suggest, motivate, disclose, or make obvious positioning of a flexible member “between the first mold cavity **portions** and the second mold cavity portion,” as claim 37 requires.

Next, we consider claim 38, which reads as follows:

38. *The method of claim 37 wherein:
placing polymeric resin in the mold cavity comprises placing
the polymeric resin in the first mold cavity portions
and the second mold cavity portion; and
expanding the polymeric resin in the mold cavity comprises
expanding the polymeric resin in the first mold cavity
portions and expanding the polymeric resin in the
second mold cavity portion.*

Thus, claim 38 specifically requires placement of polymeric resin in **both** “the first mold cavity portions and the second mold cavity portion” prior to expansion of the polymeric resin.

As detailed above in relation to the Examiner’s rejection of claim 38 based solely on the Ambrose patent, the Ambrose patent does not disclose this pre-expansion placement of the polymeric resin. Instead, the Ambrose patent discloses the polymeric resin is placed only a single mold cavity portion, namely the lower mold portion 38. Col. 4, lines 2-4. Only thereafter, **during expansion** of the polymeric resin, does the polymeric resin begin to enter the upper mold half 40. Consequently, based on the explicit disclosure of the Ambrose patent, the Ambrose patent clearly does not disclose placement of polymeric resin in **both** “the first mold cavity portions and the second mold cavity portion” prior to expansion of the polymeric resin, as claim 38 requires.

The Spertus patent adds nothing to the disclosure of the Ambrose patent on this topic, since the Spertus patent merely discloses balls or spheres 14 that may be formed or strung on the lines 16, 18, but does not teach anything about use of a mold having a cavity to form any sphere 14 about the lines 16, 18. Instead, the Spertus patent merely discloses that two existing semi-spheres (halves) may be molded (formed) together to create a whole sphere 14 that is located on both sides of the flexible sheet (or with lines 16, 18 passing through the whole sphere 14). Col. 3, lines 40-65. Certainly, the Spertus patent does not teach or suggest anything about placement of polymeric resin in **both** “first mold cavity portions and the second mold cavity portion” located on opposing sides

of a flexible material prior to expansion of the polymeric resin, as claim 38 requires. Instead, the Spertus patent merely suggests that pre-expanded polystyrene foam material (in forms such as rods or tube) may be positioned on opposing sides of the flexible sheet and then formed (molded or shaped) into the final spherical shape. Col. 3, lines 52-61.

Furthermore, as noted above, the Nakayama patent does not teach, suggest, or disclose anything about placement of polymeric resin in **both** “first mold cavity portions and the second mold cavity portion” located on opposing sides of a flexible material prior to expansion of the polymeric resin, as claim 38 requires. Indeed, the Nakayama patent does not even contain any disclosure pertaining non-expanded polymeric resin and consequently cannot contain any disclosure pertaining to placement of polymeric resin prior to expansion.

Neither the Ambrose, Spertus, nor Nakayama patents, either separately or in any combination, teach, suggest, or disclose anything about placement of polymeric resin in **both** “first mold cavity portions and the second mold cavity portion” located on opposing sides of a flexible material prior to expansion of the polymeric resin, as claim 38 requires. The only conceivable solution to this lack of guidance by the Ambrose, Spertus, and Nakayama patents would be to use the details provided in claim 38 as a guide that leads to placement of polymeric resin in **both** “first mold cavity portions and the second mold cavity portion” located on opposing sides of a flexible material prior to expansion of the polymeric resin.

However, any such use of the claim details as a guide or map to creating the invention defined therein is of course improper hindsight reconstruction that may not be used as the basis for an allegation that the claim details are rendered obvious by a single reference or by a combination of references, such as the combination of references, namely the Ambrose, Spertus, and Nakayama patents, the Examiner seeks to rely upon. Consequently, the foregoing comments illustrate the details provided in the Ambrose patent, the Spertus patent, and the Nakayama patent, either separately or in any combination, fail to teach, suggest, motivate, disclose, or make obvious placement of polymeric resin in **both** “first mold cavity portions and the second mold cavity portion” located on opposing sides of a flexible material prior to expansion of the polymeric resin, as claim 38 requires.

Next, we consider claim 39, which reads as follows:

39. *The method of claim 38 wherein:
the flexible layer has a first major surface and a second major surface that are located on opposing sides of the flexible layer and has internal surfaces that define a plurality of holes that extend through the flexible layer from the first major surface to the second major surface; and
placing polymeric resin in the mold cavity comprises placing the polymeric resin in the second mold cavity portion and allowing the polymeric resin to pass through the holes of the flexible layer and into the first mold cavity portions.*

Thus, claim 39 specifically requires passage of the polymeric resin “through the holes of the flexible layer and into the first mold cavity portions” prior to expansion of the polymeric resin.

The Ambrose patent does not disclose this pre-expansion passage of the polymeric resin “through the holes of the flexible layer and into the first mold cavity portions.” In fact, the Ambrose patent could not possibly contain such a disclosure, since, in the course of molding the bun 10, the Ambrose patent discloses that the “reinforcing member 20 is . . . applied to the mold wall 42” of the upper mold half 40. Col. 3, lines 58-60. In this arrangement, with the reinforcing member 20 applied to the mold wall 42, passage of unexpanded resin from one side of the reinforcing member 20, through the reinforcing member 20, and to the other side of the reinforcing member 20 is a physical impossibility. Consequently, based on the explicit disclosure of the Ambrose patent, the Ambrose patent clearly does not disclose passage of the polymeric resin “through the holes of the flexible layer and into the first mold cavity portions” prior to expansion of the polymeric resin, as claim 39 requires.

The Spertus patent adds nothing to the disclosure of the Ambrose patent on this topic, since the Spertus patent merely discloses balls or spheres 14 that may be formed or strung on the lines 16, 18, but does not teach anything about use of a mold having a cavity to form any sphere 14 about the lines 16, 18. Instead, the Spertus patent merely discloses that two existing semi-spheres (halves) may be molded (formed) together to create a whole sphere 14 that is located on both sides of the flexible sheet (or with lines 16, 18 passing through the whole sphere 14). Col. 3, lines 40-65. Certainly,

the Spertus patent does not teach or suggest anything about passage of unexpanded resin from one side of the lines 16, 18 to the other side of the lines 16, 18 prior to expansion of the polymeric resin, as claim 39 requires. Instead, the Spertus patent merely suggests that pre-expanded polystyrene foam material (in forms such as rods or tube) may be positioned on opposing sides of the flexible sheet and then formed (molded or shaped) into the final spherical shape. Col. 3, lines 52-61.

Furthermore, the Nakayama patent does not teach, suggest, or disclose anything about passage of unexpanded polymeric resin “through the holes of the flexible layer,” as required by claim 39. Indeed, Nakayama patent does not even disclose or teach anything about a flexible member, but instead concerns a rigid wire-based net. Likewise, the Nakayama patent does not even contain any disclosure pertaining to non-expanded polymeric resin and consequently cannot contain any disclosure pertaining to movement of polymeric resin prior to expansion.

Neither the Ambrose, Spertus, nor Nakayama patents, either separately or in any combination, teach, suggest, or disclose anything about passage of polymeric resin “through the holes of the flexible layer and into the first mold cavity portions” prior to expansion of the polymeric resin, as claim 39 requires. The only conceivable solution to this lack of guidance by the Ambrose, Spertus, and Nakayama patents would be to use the details provided in claim 39 as a guide that leads to passage of polymeric resin “through the holes of the flexible layer and into the first mold cavity portions” prior to expansion of the polymeric resin.

However, any such use of the claim details as a guide or map to creating the invention defined therein is of course improper hindsight reconstruction that may not be used as the basis for an allegation that the claim details are rendered obvious by a single reference or by a combination of references, such as the combination of references, namely the Ambrose, Spertus, and Nakayama patents, the Examiner seeks to rely upon. Consequently, the foregoing comments illustrate the details provided in the Ambrose patent, the Spertus patent, and the Nakayama patent, either separately or in any combination, fail to teach, suggest, motivate, disclose, or make obvious passage of the polymeric resin “through the holes of the flexible layer and into the first mold cavity portions” prior to expansion of the polymeric resin, as claim 39 requires.

Next, we consider claim 42 that reads as follows:

42. The method of claim 37 wherein the impact absorbing composite intermediate comprises a plurality of first impact absorbing members, the first impact absorbing members formed in the first mold cavity portions, and adjacent first impact absorbing members are discrete and individually distinct from each other.

Claim 42 thus requires formation of “a plurality of first impact absorbing members” in the “first mold cavity portions.”

The Ambrose patent clearly does not teach or suggest molding of a plurality of impact absorbing members using multiple mold cavity portions, but instead teaches molding of a single member, namely the bun 10, using a single mold cavity consisting of a single mold cavity portion. Thus, significant modification of the details disclosed in the Ambrose patent to get from a structure and method of molding of a single foam structure (bun 10) in a single mold cavity to a structure and method of molding multiple foam structures (spheres 14) in multiple mold cavities is required. However, no teaching or suggestion about how to accomplish this major change in structure and methodology is provided in the Ambrose patent.

The Spertus patent adds nothing to the disclosure of the Ambrose patent on this topic, since the Spertus patent merely discloses balls or spheres 14, but does not teach anything about use of a single mold having multiple cavities to form the various spheres 14. Instead, the Spertus patent merely discloses that two existing semi-spheres (halves) may be molded (formed) together to create a whole sphere 14. Col. 3, lines 40-65. Also, the Spertus patent suggests that pre-expanded polystyrene foam material (in forms such as rods or tube) may be positioned on opposing sides of the flexible sheet and then formed (molded or shaped) into the final spherical shape. Col. 3, lines 52-61. The Examiner’s reliance on the Nakayama patent adds nothing, since the Nakayama patent, like the Ambrose patent, teaches molding of a single body using single cavity mold.

Furthermore, the Examiner does not point to any particular passages of the Ambrose, Spertus, or Nakayama patents in support of the Examiner’s theory that a major change in the structure and methodology of the Ambrose details would allegedly be obvious. Certainly, there is no teaching or suggestion in the Ambrose patent about using multiple mold cavities to mold

multiple, individual bodies, such as multiple spheres 14. Likewise, there is no teaching or suggestion in the Nakayama patent about using multiple mold cavities to mold multiple, individual bodies. Certainly, the Examiner must agree the Spertus patent does not teach such a multiple molding cavity setup, since the Spertus patent merely discloses individual molding of semi-spheres (halves) far removed from the single flexible member (layout of lines 16, 18) disclosed in the Spertus patent.

Thus, neither the Ambrose, Spertus, nor Nakayama patents, either separately or in any combination, teaches, suggests, or discloses anything about formation of “a plurality of first impact absorbing members” in the “first mold cavity portions,” as claim 42 requires.

The only conceivable solution to this lack of guidance by the Ambrose, Spertus, and Nakayama patents would be to use the details provided in claim 42 as a guide that leads to formation of “a plurality of first impact absorbing members” in the “first mold cavity portions.” However, any such use of the claim details as a guide or map to creating the invention defined therein is of course improper hindsight reconstruction that may not be used as the basis for an allegation that the claim details are rendered obvious by a single reference or by a combination of references, such as the combination of references, namely the Ambrose, Spertus, and Nakayama patents, the Examiner seeks to rely upon. Consequently, the foregoing comments illustrate the details provided in the Ambrose patent, the Spertus patent, and the Nakayama patent, either separately or in any combination, fail to teach, suggest, motivate, disclose, or make obvious formation of “a plurality of first impact absorbing members” in “first mold cavity portions.”

Next, we consider claim 46 that reads as follows:

46. *The method of claim 37 wherein the impact absorbing composite comprises:*

a plurality of first impact absorbing members attached to the flexible layer; and

a plurality of second impact absorbing members attached to the flexible layer, the first impact absorbing members and the second impact absorbing members attached to opposing sides of the flexible layer.

Claim 46 thus requires both a “plurality of first impact absorbing members attached to the flexible layer” and a “plurality of second impact absorbing members attached to the flexible layer,” where

the first impact absorbing members and the second impact absorbing members are “attached to opposing sides of the flexible layer.”

The Ambrose patent clearly does not teach or suggest molding of two pluralities, or even one plurality, of impact absorbing members, but instead teaches molding of a single member, namely the bun 10. Consequently, the Ambrose patent does not and cannot teach or suggest anything with regard to attachment of different pluralities of impact absorbing members on opposing sides of a flexible layer, such as the reinforcing member 20 of the Ambrose patent.

The Spertus patent has opposing pluralities of spheres 14 attached to opposing sides of the layout of the lines 18, 20. However, the Spertus patent does not teach anything about how this structure is produced within the confines of the method, as defined in claim 46. The Spertus patent does not teach, suggest, or disclose anything about use of a mold or mold cavities in the course of forming the spheres 14. Furthermore, as noted above, the Nakayama patent does not teach, suggest, or disclose anything about how the “non-slip tips 4” are formed, as pointed out in detail above. Certainly, the Examiner must agree that the disclosure of the Nakayama patent does not teach, suggest, or disclose anything about use of a mold or mold cavities in the course of forming the “non-slip tips 4.” Furthermore, the net disclosed in the Nakayama patent clearly does not constitute the flexible layer required by claim 46, since the Nakayama patent instead discloses that the lines that make up the net are rigid, straight wires and the net is consequently a rigid wire-based net. Col. 2, lines 55-68.

Thus, neither the Ambrose, Spertus, nor Nakayama patents, either separately or in any combination, teaches, suggests, or discloses anything about molding of a structure with a “plurality of first impact absorbing members attached to the flexible layer” and a “plurality of second impact absorbing members attached to the flexible layer,” where the first impact absorbing members and the second impact absorbing members are “attached to opposing sides of the flexible layer,” as claim 46 requires. The only conceivable solution to this lack of guidance by the Ambrose, Spertus, and Nakayama patents would be to use the details provided in claim 46 as a guide that leads to molding of a structure with a “plurality of first impact absorbing members attached to the flexible layer” and a “plurality of second impact absorbing members attached to the flexible layer,” where the first

impact absorbing members and the second impact absorbing members are “attached to opposing sides of the flexible layer.”

However, any such use of the claim details as a guide or map to creating the invention defined therein is of course improper hindsight reconstruction that may not be used as the basis for an allegation that the claim details are rendered obvious by a single reference or by a combination of references, such as the combination of references, namely the Ambrose, Spertus, and Nakayama patents, the Examiner seeks to rely upon. Consequently, the foregoing comments illustrate the details provided in the Ambrose patent, the Spertus patent, and the Nakayama patent, either separately or in any combination, fail to teach, suggest, motivate, disclose, or make obvious molding of a structure with a “plurality of first impact absorbing members attached to the flexible layer” and a “plurality of second impact absorbing members attached to the flexible layer,” where the first impact absorbing members and the second impact absorbing members are “attached to opposing sides of the flexible layer,” as claim 46 requires.

Next, we consider claim 49 that reads as follows:

49. The method of claim 46 wherein the first impact absorbing members are movable independently with respect to each other.

Claim 49 thus requires “first impact absorbing members” that are independently movable with respect to each other.

The Ambrose patent clearly does not teach or suggest molding of a plurality of impact absorbing members that are independently moveable with respect to each other. The Ambrose patent instead teaches molding of a single foam structure (bun 10) about a flexible member (reinforcing member 20), where the flexible member (reinforcing member 20) is fully encompassed by the single foam structure (bun 10). Furthermore, the attributes and structural form of the bun 10 that fully and individually encompasses the entire flexible member (reinforcing member 20) teach away from the use of the Ambrose technique as an approach to developing packaging that is flexible enough to conform to multi-dimensional shapes. Indeed, the purpose and function of the reinforcing member 20 in the Ambrose patent is to prevent the bun 10 of the Ambrose patent from losing its shape. Col. 1, lines 57-63. On the other hand, the purpose of individually supplying and spacing apart the

spheres 14 of the Spertus patent on the single flexible member (layout of lines 16, 18) is to provide the mat 12 with a high degree of flexibility. Col. 3, lines 24-31. Thus, the molding technique and structure espoused by the Ambrose patent, rather than suggesting modifications adequate to form the mat 12 of the Spertus patent, actually teach away from the Examiner's suggested modification.

In essence, the structure formed by the method of the Ambrose patent is inconsistent with uses desired for the structure formed in accordance with the Ambrose patent. The Nakayama patent does nothing to rectify the teaching the Examiner seeks, but which is lacking, in the Ambrose patent, since the Nakayama patent clearly teaches production of a rigid paving block (col. 1, line 9-20), rather than an article able to "assume the contour of the article being packaged or packed," as specified in the Spertus patent. Consequently, based on this additional observation regarding the teachings and attributes of the structures and methodologies of the Ambrose, Nakayama, and Spertus patents, one of ordinary skill in the art would not view modification or incorporation of the Ambrose molding technique in accordance with the Examiner's suggestion as obvious, (1) since such a modification or incorporation would destroy an important and intended function of the mat 12, namely enabling the mat 12 to "assume the contour of the article being packaged or packed" and (2) since the Ambrose, Nakayama, and Spertus patents teach away from such a modification or incorporation.

Thus, significant modification of the details disclosed in the Ambrose patent to get from a structure and method of molding of a single foam structure (bun 10) in a single mold cavity to a structure and method of molding multiple foam structures that are structured to be independently movable relative to each other is required. Neither the Ambrose, Spertus, nor Nakayama patents, either separately or in any combination, teaches, suggests, or discloses anything about such a modification.

The only conceivable solution to this lack of guidance by the Ambrose, Spertus, and Nakayama patents would be to use the details provided in claim 49 as a guide that leads to mold-based formation of a structure with a "plurality of first impact absorbing members" that are independently moveable with respect to each other." However, any such use of the claim details as

a guide or map to creating the invention defined therein is of course improper hindsight reconstruction that may not be used as the basis for an allegation that the claim details are rendered obvious by a single reference or by a combination of references, such as the combination of references, namely the Ambrose, Spertus, and Nakayama patents, the Examiner seeks to rely upon. Consequently, the foregoing comments illustrate the details provided in the Ambrose patent, the Spertus patent, and the Nakayama patent, either separately or in any combination, fail to teach, suggest, motivate, disclose, or make obvious mold-based formation of a structure with a “plurality of first impact absorbing members” that are independently moveable with respect to each other.”

Finally, we consider claim 50 that reads as follows:

50. The method of claim 37 wherein the flexible layer comprises a net or open-meshed fabric.

Claim 50 thus specifies that the flexible layer comprises “netting or open-meshed fabric.”

The Ambrose patent does teach a reinforcing member 20, in the form of an open lattice, mesh, or netting. Col. 2, lines 41-48. The strands of the reinforcing member 20 are “relatively stiff” and, when coupled with the joints where the strands crisscross, cause the foamed plastic material that the bun 10 is made of to be “highly stretch resistant in all of its planar directions.” Col. 1, lines 34-36 and 55-61. Ultimately, the purpose and function of the reinforcing member 20 is to prevent the bun 10 from losing its shape. Col. 1, lines 57-63. On the other hand, the purpose of employing the flexible member (layout of lines 16, 18) of the Spertus patent is to provide the mat 12 with a high degree of flexibility. Col. 3, lines 24-31. Thus, the molding technique and structure espoused by the Ambrose patent, rather than suggesting modifications adequate to form the mat 12 of the Spertus patent, actually teach away from the Examiner’s suggested modification.

In essence, the structure formed by the method of the Ambrose patent is inconsistent with uses desired for the structure formed in accordance with the Ambrose patent. The Nakayama patent does nothing to rectify the teaching the Examiner seeks, but which is lacking, in the Ambrose patent, since the Nakayama patent clearly teaches production of a rigid paving block (col. 1, line 9-20) that encompasses a rigid wire-based net (col. 2, lines 55-68), rather than an article able to

“assume the contour of the article being packaged or packed,” as specified in the Spertus patent. Consequently, based on this additional observation regarding the teachings and attributes of the structures and methodologies of the Ambrose, Nakayama, and Spertus patents, one of ordinary skill in the art would not view modification or incorporation of the Ambrose molding technique in accordance with the Examiner’s suggestion as obvious, (1) since such a modification or incorporation would destroy an important and intended function of the mat 12, namely enabling the mat 12 to “assume the contour of the article being packaged or packed” and (2) since the Ambrose, Nakayama, and Spertus patents teach away from such a modification or incorporation.

Thus, significant modification of the details disclosed in the Ambrose patent to get from a structure and method of molding of a single foam structure (bun 10) to a structure and method of molding multiple foam structures in conjunction with a flexible layer that comprises a net or open-meshed fabric is required. Neither the Ambrose, Spertus, nor Nakayama patents, either separately or in any combination, teaches, suggests, or discloses anything about such a modification.

The only conceivable solution to this lack of guidance by the Ambrose, Spertus, and Nakayama patents would be to use the details provided in claim 50 as a guide that leads to mold-based formation of a structure that encompasses a flexible layer comprising “netting or open-meshed fabric.” However, any such use of the claim details as a guide or map to creating the invention defined therein is of course improper hindsight reconstruction that may not be used as the basis for an allegation that the claim details are rendered obvious by a single reference or by a combination of references, such as the combination of references, namely the Ambrose, Spertus, and Nakayama patents, the Examiner seeks to rely upon. Consequently, the foregoing comments illustrate the details provided in the Ambrose patent, the Spertus patent, and the Nakayama patent, either separately or in any combination, fail to teach, suggest, motivate, disclose, or make obvious mold-based formation of a structure that encompasses a flexible layer comprising “netting or open-meshed fabric.”

Claims 37-41 and 46, 49, and 50 are each allowable. Claims 42-43 and 47-48 are also allowable, since claims 42-43 and 47-48 each depend from allowable 37. Claims 38-41, 46, 49, and

50 are also allowable for an additional reason, since claims 38-41, 46, 49, and 50 each depend from allowable claim 37. Consequently, Applicant respectfully requests that the Examiner reconsider and withdraw the rejections of claims 37-43 and 46-50 under 35 U.S.C. §103(a) based on the Ambrose patent, the Spertus patent, and the Nakayama patent and that claims 37-43 and 46-50 be allowed.

New Claims Added By Applicant

As indicated above, Applicant has added new claims 80-100. Support for the features defined in new claims 80-100 is believed to exist throughout the above-identified application. Claims 80-100 are believed allowable. Consequently, Applicant respectfully requests consideration and allowance of new claims 80-100.

CONCLUSION

Claims 37-52 and 74-79 are each believed allowable. Consequently, Applicant respectfully requests reconsideration and allowance of claims 37-52 and 74-79. Furthermore, new claims 80-100 are believed allowable. Therefore, consideration and allowance of new claims 80-100 is respectfully requested. The Examiner is invited to contact Applicant's below-named attorney to discuss any aspect of the above-identified application and facilitate allowance of this application.

Respectfully submitted,
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